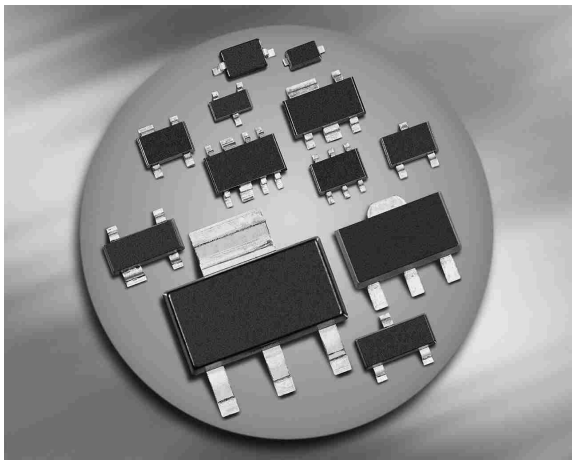
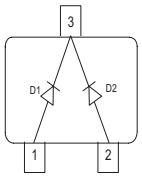
**Silicon Variable Capacitance Diodes**

- For FM radio tuners with extended frequency band
- High tuning ratio at low supply voltage (car radio)
- Monolithic chip (common cathode) for perfect dual diode tracking
- Coded capacitance groups and group matching available
- Pb-free (RoHS compliant) package



RoHS

**BB814**




| Type | Package | Configuration | $L_S$(nH) | Marking |
|---|---|---|---|---|
| BB814 | SOT23 | common cathode | 1.8 | SH1/2* |

*For differences see next page Capacitance groups

**Maximum Ratings** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Diode reverse voltage | $V_R$ | 18 | V |
| Peak reverse voltage- | $V_{RM}$ | 20 | |
| Forward current | $I_F$ | 50 | mA |
| Operating temperature range | $T_{op}$ | -55 ... 125 | °C |
| Storage temperature | $T_{stg}$ | -55 ... 150 | |

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Reverse current<br>$V_R$ = 16 V<br>$V_R$ = 16 V, $T_A$ = 60 °C | $I_R$ | <br>-<br>- | <br>-<br>- | <br>20<br>200 | nA |
| **AC Characteristics** | | | | | |
| Diode capacitance[1)]<br>$V_R$ = 2 V, $f$ = 1 MHz<br>$V_R$ = 8 V, $f$ = 1 MHz | $C_T$ | <br>43<br>19.1 | <br>44.75<br>20.8 | <br>46.5<br>22.7 | pF |
| Capacitance ratio<br>$V_R$ = 2 V, $V_R$ = 8 V, $f$ = 1 MHz | $C_{T2}/C_{T8}$ | 2.05 | 2.15 | 2.25 | |
| Capacitance matching[2)]<br>$V_R$ = 2 V, $V_R$ = 8 V, $f$ = 1 MHz | $\Delta C_T/C_T$ | - | - | 3 | % |
| Series resistance<br>$V_R$ = 2 V, $f$ = 100 MHz | $r_S$ | - | 0.18 | - | Ω |
| Q factor<br>$f$ = 100 MHz, $V_R$ = 2 V | $Q$ | - | 200 | - | |

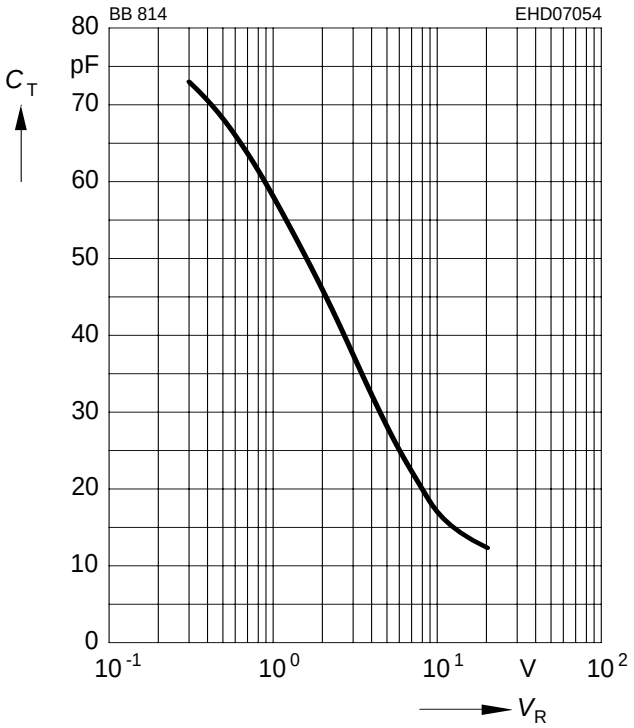
[1]Capacitance groups at 2V and 8V, coded 1; 2

| $C_T$/groups | | 1 | 2 |
|---|---|---|---|
| $C_{2V}$ | min | 43pF | 44.5pF |
| $C_{2V}$ | max | 45pF | 46.5pF |
| $C_{8V}$ | min | 19.1pF | 19.75pF |
| $C_{8V}$ | max | 21.95pF | 22.7pF |

[2]For details please refer to Application Note 047.

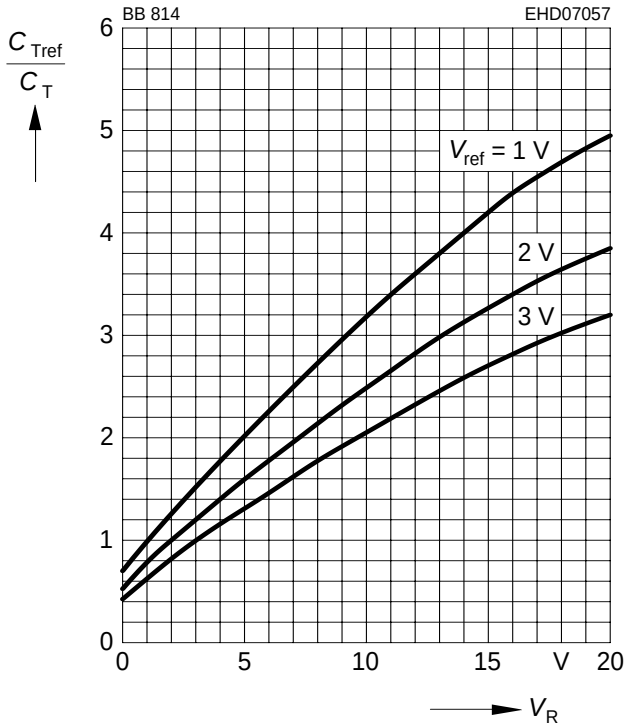
**Diode capacitance** $C_T = f(V_R)$

$f$ = 1MHz

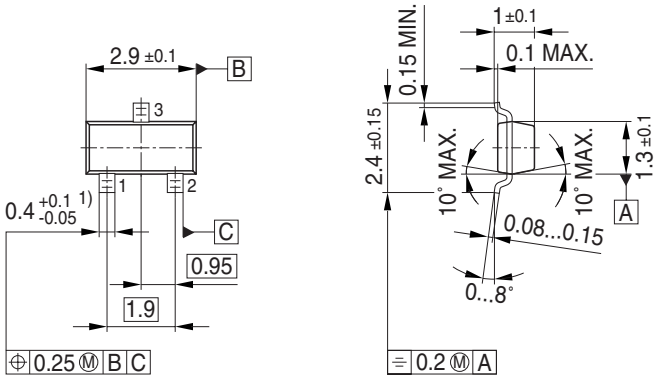



**Capacitance ratio** $C_{Tref}/C_T = f(V_R)$

$f$ = 1MHz

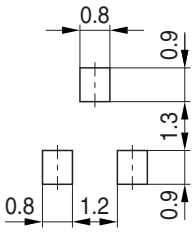


## Package Outline

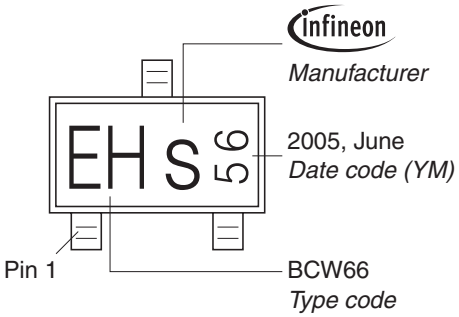



1) Lead width can be 0.6 max. in dambar area

## Foot Print

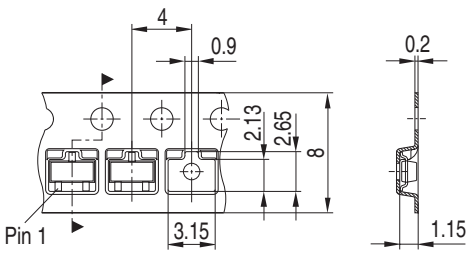



## Marking Layout (Example)




## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



**Edition 2009-11-16**

**Published by**
**Infineon Technologies AG**
**81726 Munich, Germany**



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